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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/082,567	02/25/2002	Tom Tse	1458.TT4763	3170

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EXAMINER

EL SHAMMAA, MARY A

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/082,567

Applicant(s)

TSE ET AL.

Examiner

Mary A. El-Shammaa

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: **9**. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: On page 9, line 12 "module45" should be changed to – *module 45* –.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by Walther (6,323,497).

Regarding claim 1, Walther discloses in Figures 1 and 3 a method of exposing target material to an ion beam in an ion implantation system (**100**), the method comprising the steps of quantifying an amount of ion beam neutralization and controlling a characteristic of the ion beam of the implantation system based upon the amount of ion beam neutralization (Col. 1, Lines 6-10; Col. 2, Lines 16-56; Col. 3, Lines 1-21; Col. 5, Lines 7-59; Col. 6, Lines 26-56; Col. 9, Lines 8-55).

Regarding claims 2 and 3, Walther discloses the target material being a semiconductor substrate (**3**) or any other substance to be implanted using the ion beam (Col. 1, Lines 14-15; Col. 2, Lines 32-34; Col. 3, Lines 63-66; Col. 4, Lines 5-8).

Regarding claims 4 and 20, Walther discloses the step of quantifying being conducted by a first device (**41**) capable of detecting an ion beam (**2**) and a second device (**4, 43**) capable of detecting an ion beam (Col. 3, Lines 24-35; Col. 4, Lines 8-16; Col. 5, Lines 40-46; Col. 8, Lines 15-62).

Regarding claims 5, 10, 21, and 24, Walther discloses the characteristic being selected from a group consisting of: beam current, beam energy, beam scan rate, vacuum, gas pressure, and ion dose (Col. 1, Lines 7-10; Col. 2, Lines 47-56; Col. 3, Lines 14-21; Col. 9, Lines 44-55).

Regarding claims 6, 17, and 22, Walther discloses the step of quantifying the amount of beam neutralization including determining a reference ratio at a first ion beam current at a first location and a second location of a processing chamber wherein the range of the reference ratio being dependent upon the location of the first device (**41**) with reference to the second device (**43**), determining a current ratio of a second ion beam current at the first location and the second location, wherein the second ion beam current is being used to process a second target, and

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determining a charge neutralization component of the ion beam at the second target location based on the reference ratio and the current ratio (Col. 9, Line 35 through Col. 10, Line 43).

Regarding claims 7 and 8, Walther discloses the reference ratio being determined when a relatively high, stable vacuum exists along the ion beam line and the target material (3) may or may not be present (Col. 2, Lines 34-47; Col. 4, Line 63 through Col. 5, Line 1; Col. 8, Lines 48-62).

Regarding claims 9 and 23, Walther discloses the step of controlling including modifying the ion dose based upon the charge neutralization component to create a total dose and adjusting a process parameter based on the total dose (Col. 2, Lines 44-56; Col. 3, Lines 5-21; Col. 6, Lines 26-56).

Regarding claims 11-15, Walther discloses the second detection device (4, 43) being either fixed or movable and located in a variety of positions, including adjacent the target position, behind the target position, and along the beam path to the target position (Col. 4, Lines 13-16; Col. 8, Lines 13-45).

Regarding claim 16, Walther discloses, as an example, a reference ratio of 2:1, which falls in the range of 100:1 to 1:1 (Col. 9, Line 35 through Col. 10, Line 38).

Regarding claim 18, Walther discloses the reference ratio being a previously stored value retrieved from control software (Col. 2, Lines 40-42; Col. 6, Lines 18-22; Col. 8, Lines 62-65).

Regarding claim 19, Walther discloses a system comprising a memory (data storage device), a processor (computer) operably connected to the memory, a program of instructions including instructions to manipulate the processor to quantify an amount of ion beam neutralization, and control a characteristic of the ion beam of an ion implantation system based

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upon the amount of ion beam neutralization (Col. 4, Lines 20-32; Col. 5, Lines 10-15; Col. 6, Lines 3-56).

Conclusion


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (6,497,194), (6,137,112), (5,998,798) – all pertaining to ion implantation and dose control.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mary A. El-Shammaa whose telephone number is 703.308.0851. The examiner can normally be reached on M-F (8:30am-5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on 703.308.4116. The fax phone numbers for the organization where this application or proceeding is assigned are 703.872.9318 for regular communications and 703.872.9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703.872.9317.

mae
May 6, 2003



SUPPLEMENTAL EXAMINATION
10/082,567
MAY 6 2003